

BAY AREA CONFLUENCE

A call to action for regional water resilience



#BAConfluence

1:15

Opening Keynote: David Sedlak

A Regional Approach to the Bay Area's Water Challenges



ReNUWIt
Re-inventing the Nation's
**URBAN WATER
INFRASTRUCTURE**

David L. Sedlak

Department of Civil & Environmental Engineering

University of California, Berkeley

Bat Area Confluence Conference

Association of Bay Area Governments

November 10, 2016

2050: The Year We Completed Our Urban Water Transformation



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David L. Sedlak
Department of Civil & Environmental Engineering
University of California, Berkeley
Association of Bay Area Governments
April 23, 2015



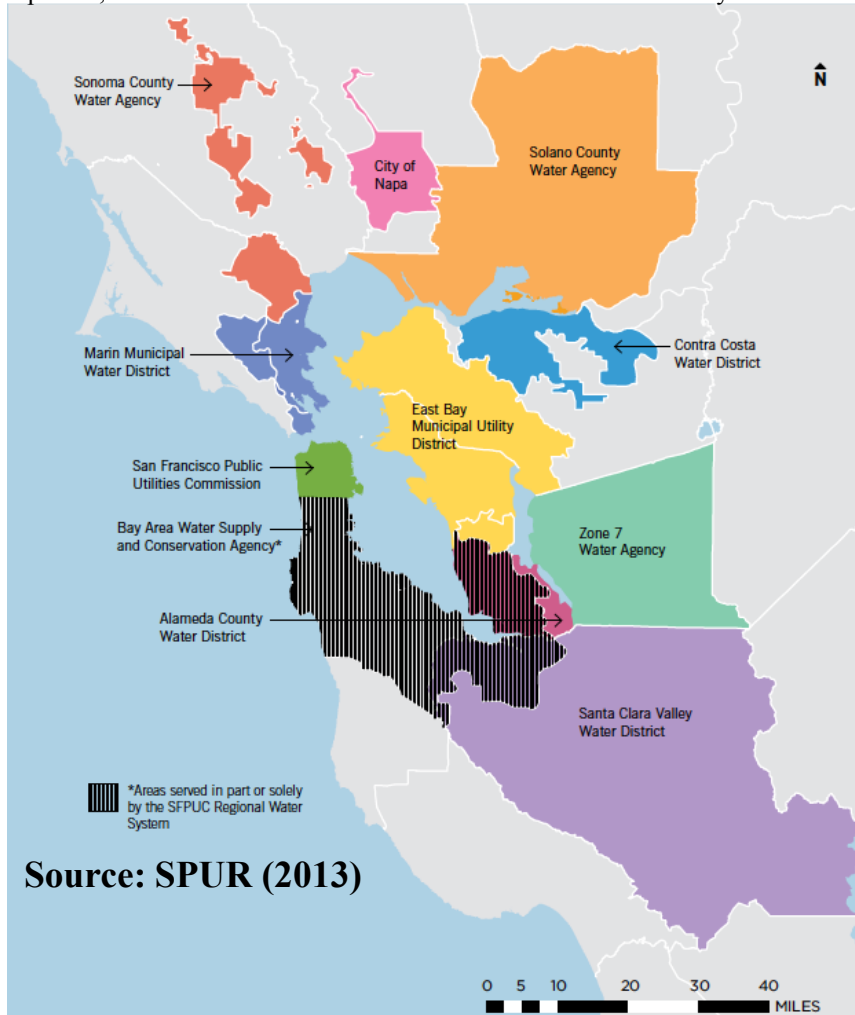
2016: The Five Taps Summit



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April 22, 2016

The Bay Area Voice



Source: SPUR (2013)

Bay Area Leaders Convene Water Summit

Oakland, CA—Today the mayors and city council presidents of the San Francisco Bay Area met to develop a comprehensive strategy for decreasing the region's historic dependence on imported water. The new plan, which the leaders are referring to as the five taps project is supported by the governor and



Imported Water



Local Supplies



Demand Management



Water Reuse



Desalination



Singapore's Four Taps



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"If Singapore's foreign policy is prejudicial to Malaysia's interests, we could always bring pressure to bear on them by threatening to turn off the water in Johor"

—Malaysian Prime Minister T. Rahman (1965)





Responding to Droughts



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**Stormwater
Harvesting**



**Water
Reuse**



**Water Use
Efficiency**



**Seawater
Desalination**

https://www.ted.com/talks/david_sedlak_4_ways_we_can_avoid_a_catastrophic_drought



SoCal Diversifies Water Supply



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5-40%



**Stormwater
Harvesting**

10-40%



**Water
Reuse**

10-35%



**Water Use
Efficiency**

0-30%



**Seawater
Desalination**

https://www.ted.com/talks/david_sedlak_4_ways_we_can_avoid_a_catastrophic_drought

<https://vimeo.com/140828351>

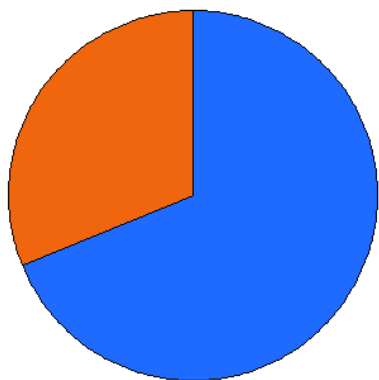


Water Portfolio Diversification

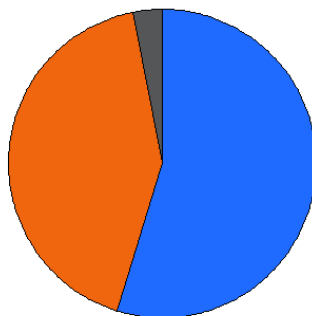


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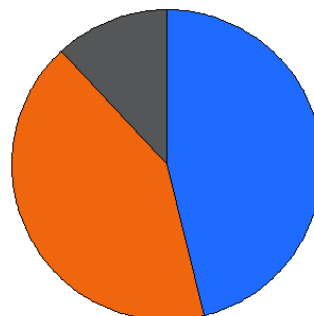
2015



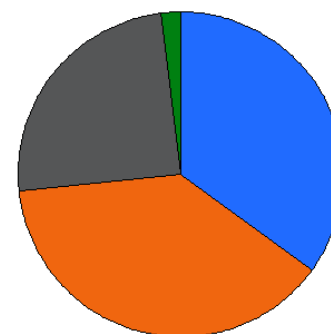
2025



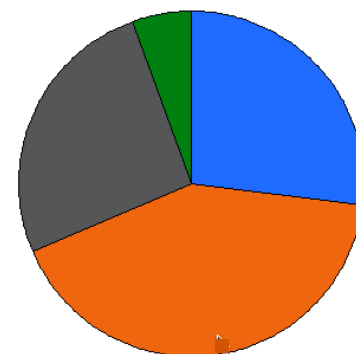
2030



2040



2050



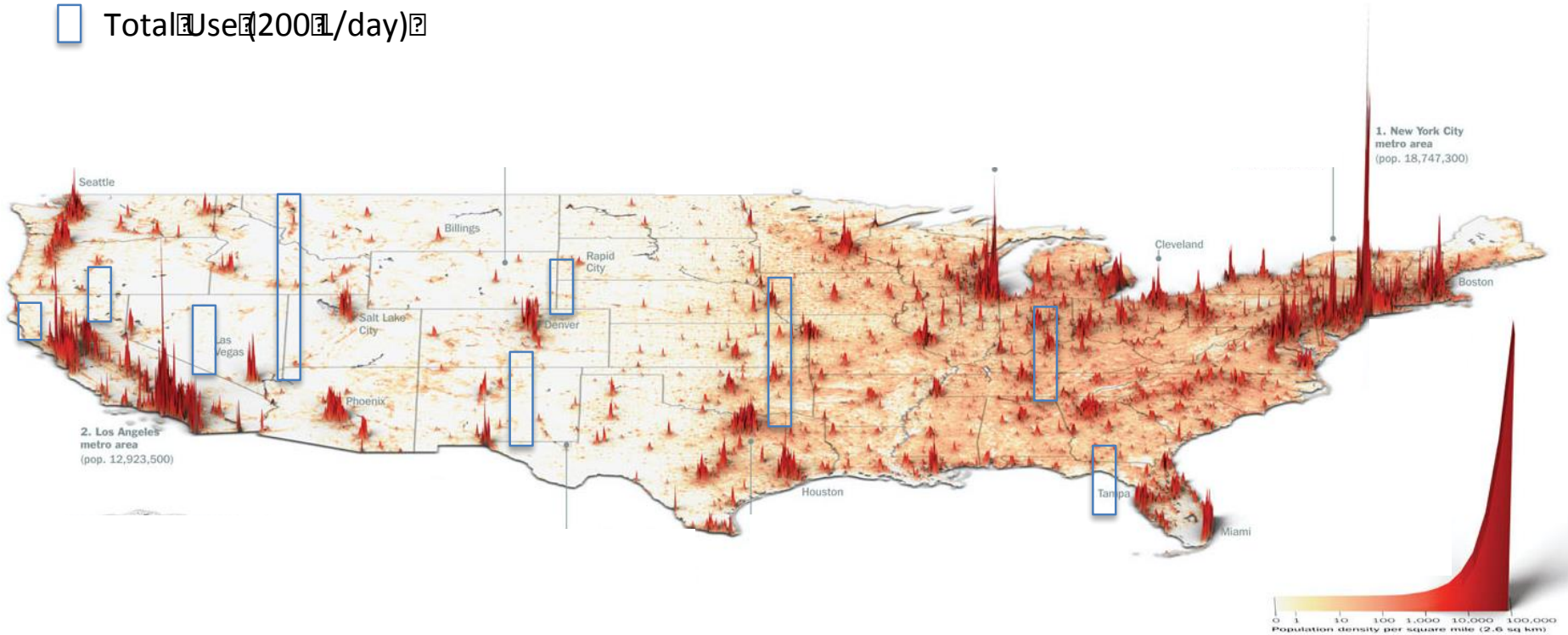


Per Capita Water Demand



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□ Total Use (2001/day)



<http://www.thefunctionalart.com>

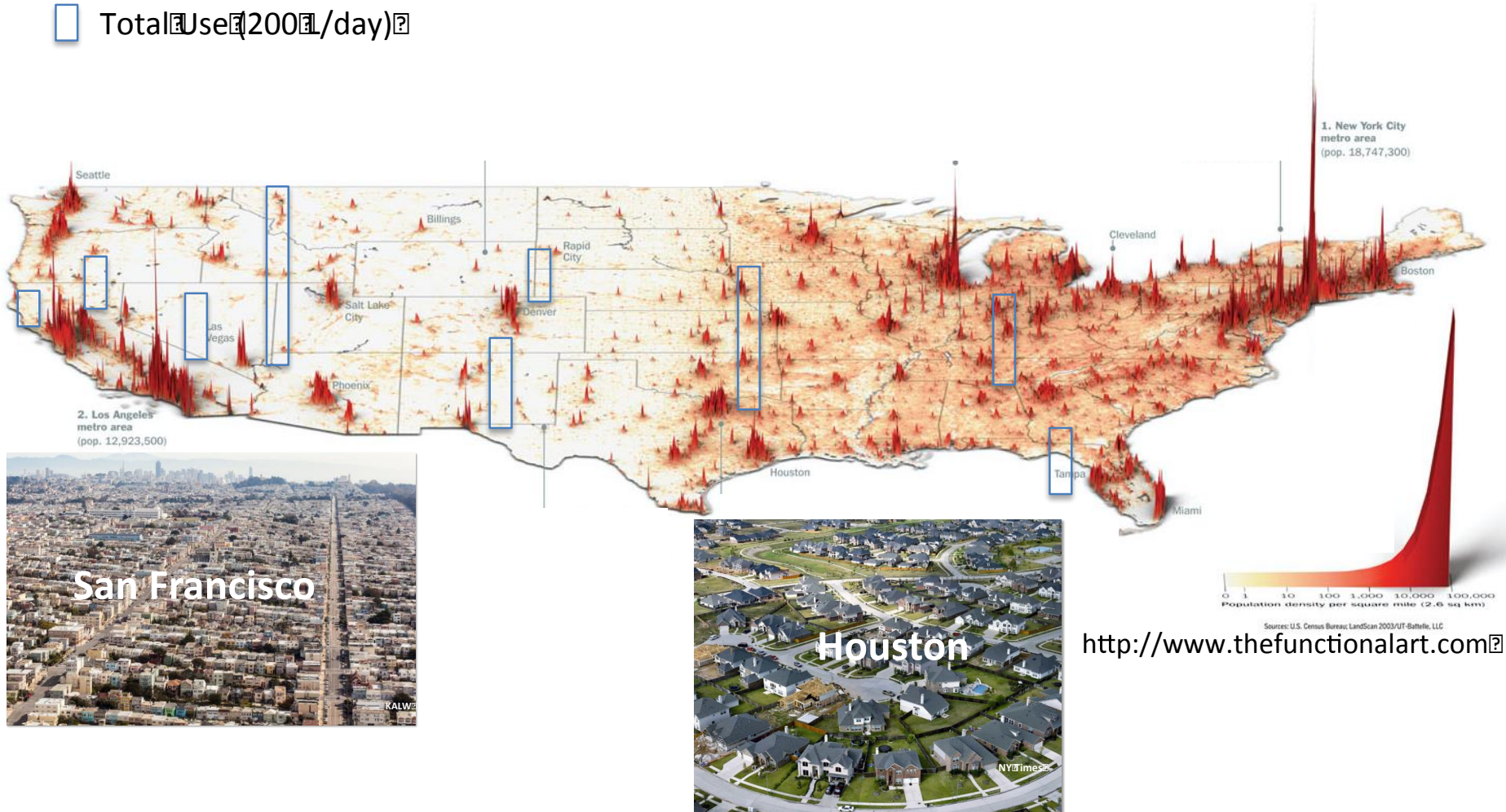


Per Capita Water Demand



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☐ Total Use (2001/day) ☐

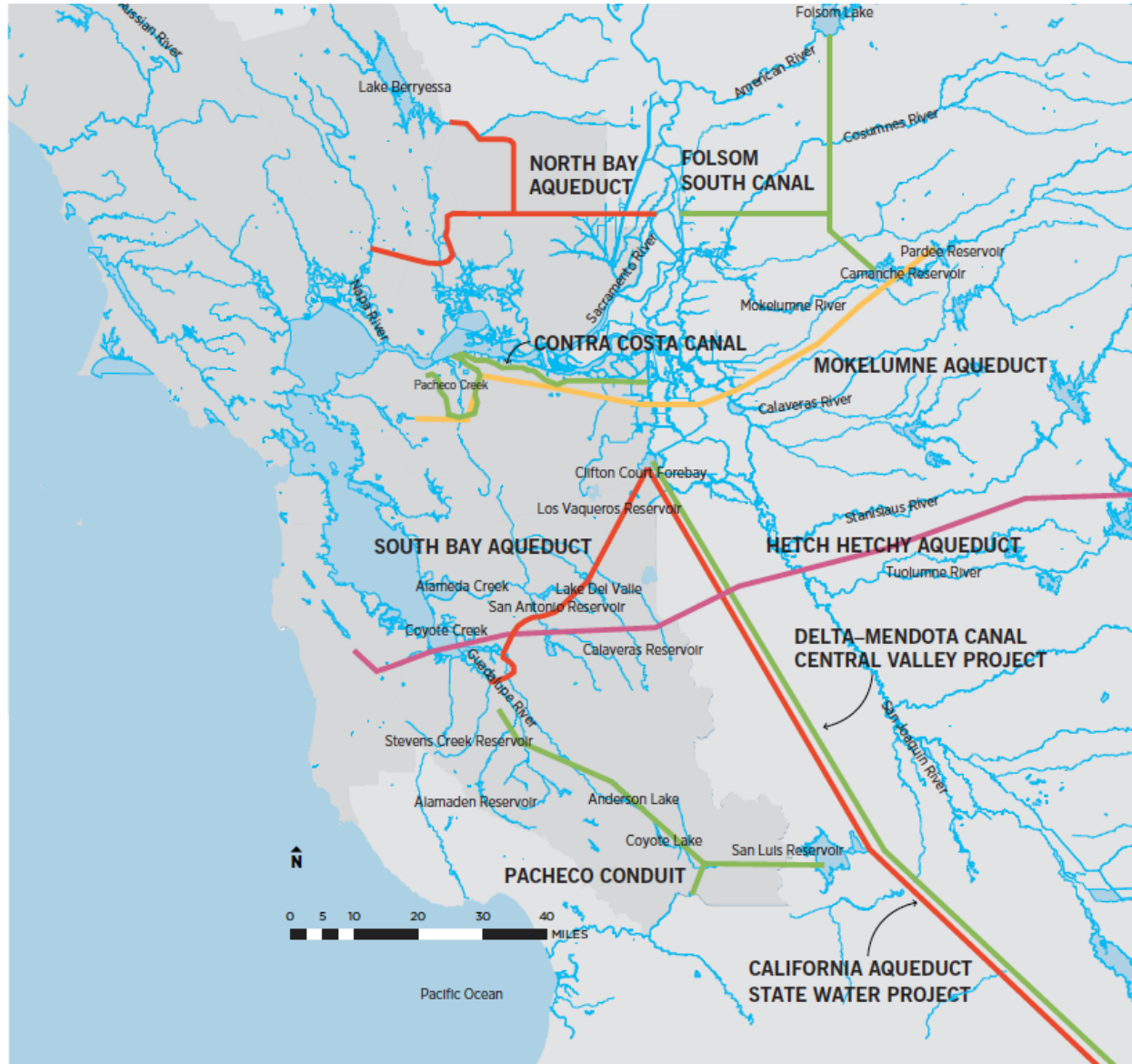




Regional Resiliency



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Source: SPUR map with data from: Cal-Atlas, PG&E, Santa Clara Valley Water District, Bay Area Integrated Regional Water Management Plan



Regional Resiliency



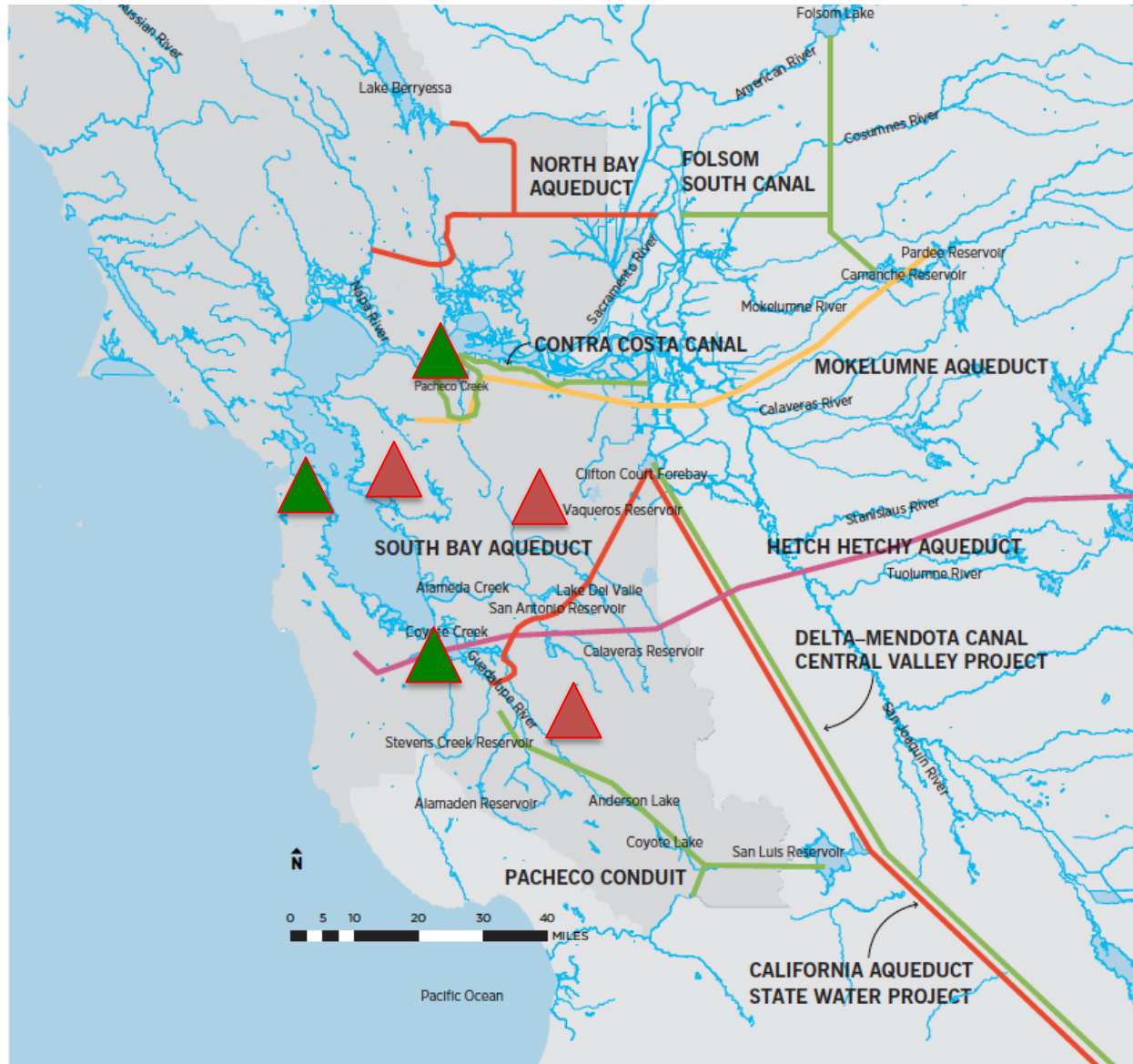
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**Desalination
Plant**



**Potable Water
Reuse Facility**



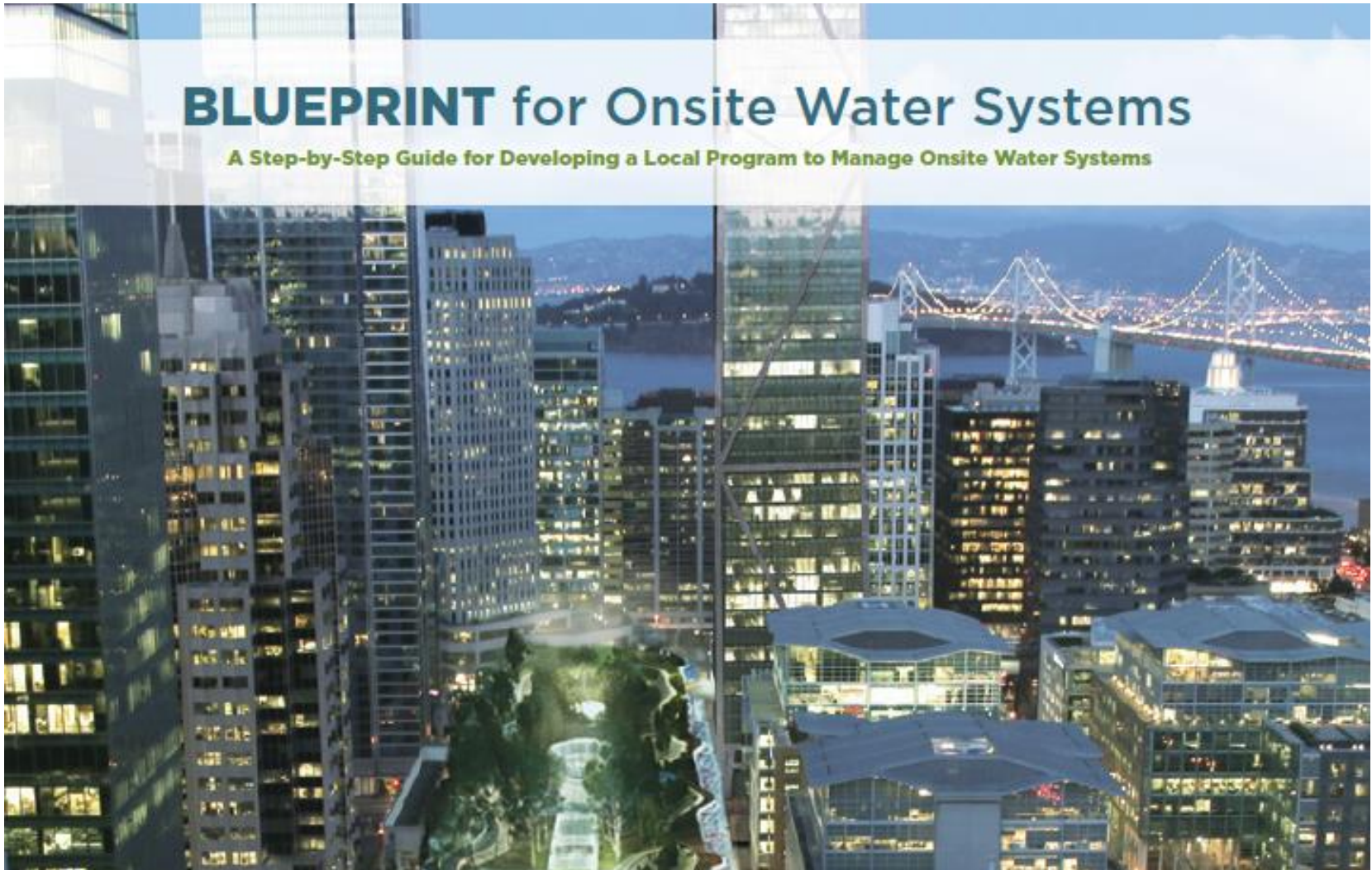
Source: SPUR map with data from: Cal-Atlas, PG&E, Santa Clara Valley Water District, Bay Area Integrated Regional Water Management Plan



Distributed Water Reuse



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SFPUC (2014)



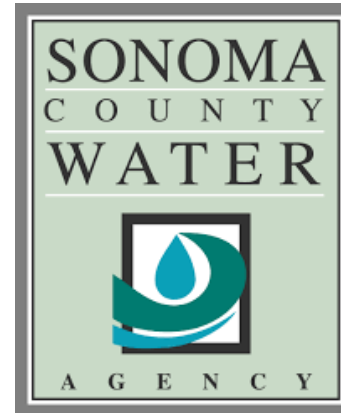
Navigating the Confluence



- No More Business as Usual
- Regional Collaboration: Essential & Difficult
- Elected Officials + Utilities = Success
- Enable Experimentation



Santa Clara Valley
Water District



San Francisco
Water
Power
Sewer

Services of the San Francisco Public Utilities Commission



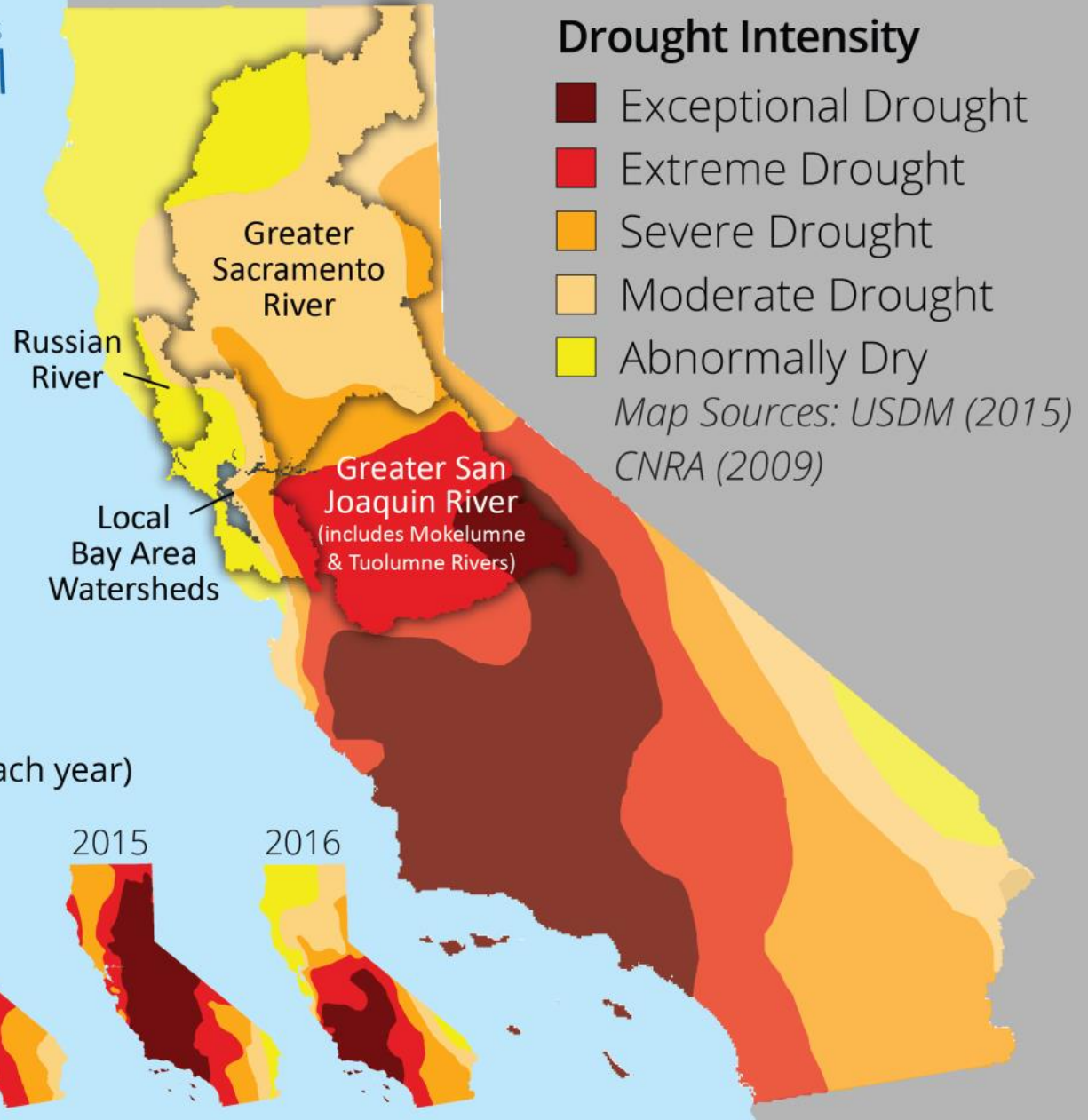
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Bay Area Water Reliability Panel

California Drought (Oct 2016) in Watersheds That Supply the Bay Area



Drought Progression

(Maps from first week of October each year)

2012

2013

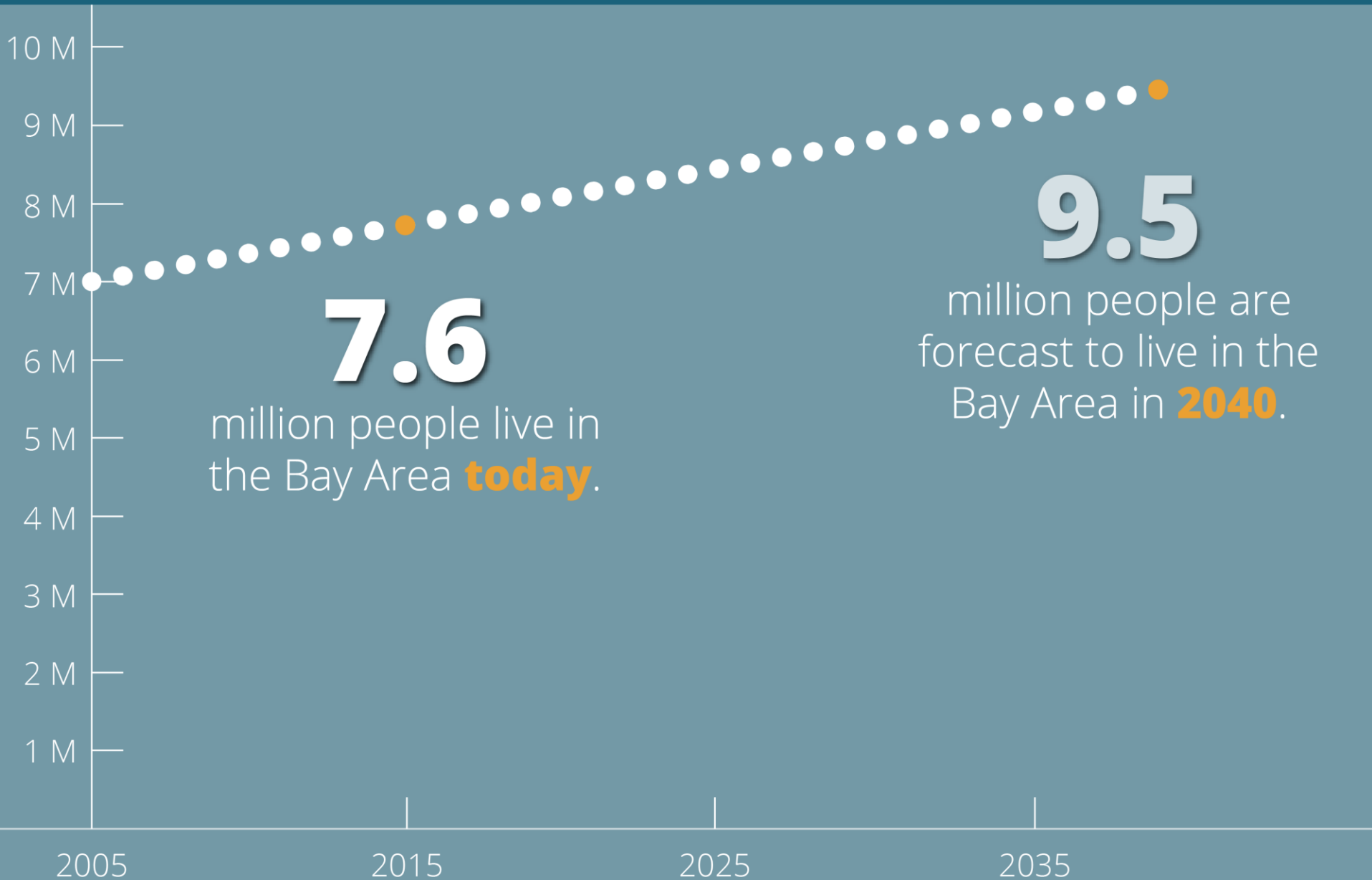
2014

2015

2016



The Bay Area is Forecast to Grow by 2 Million Residents Over Next 25 Years



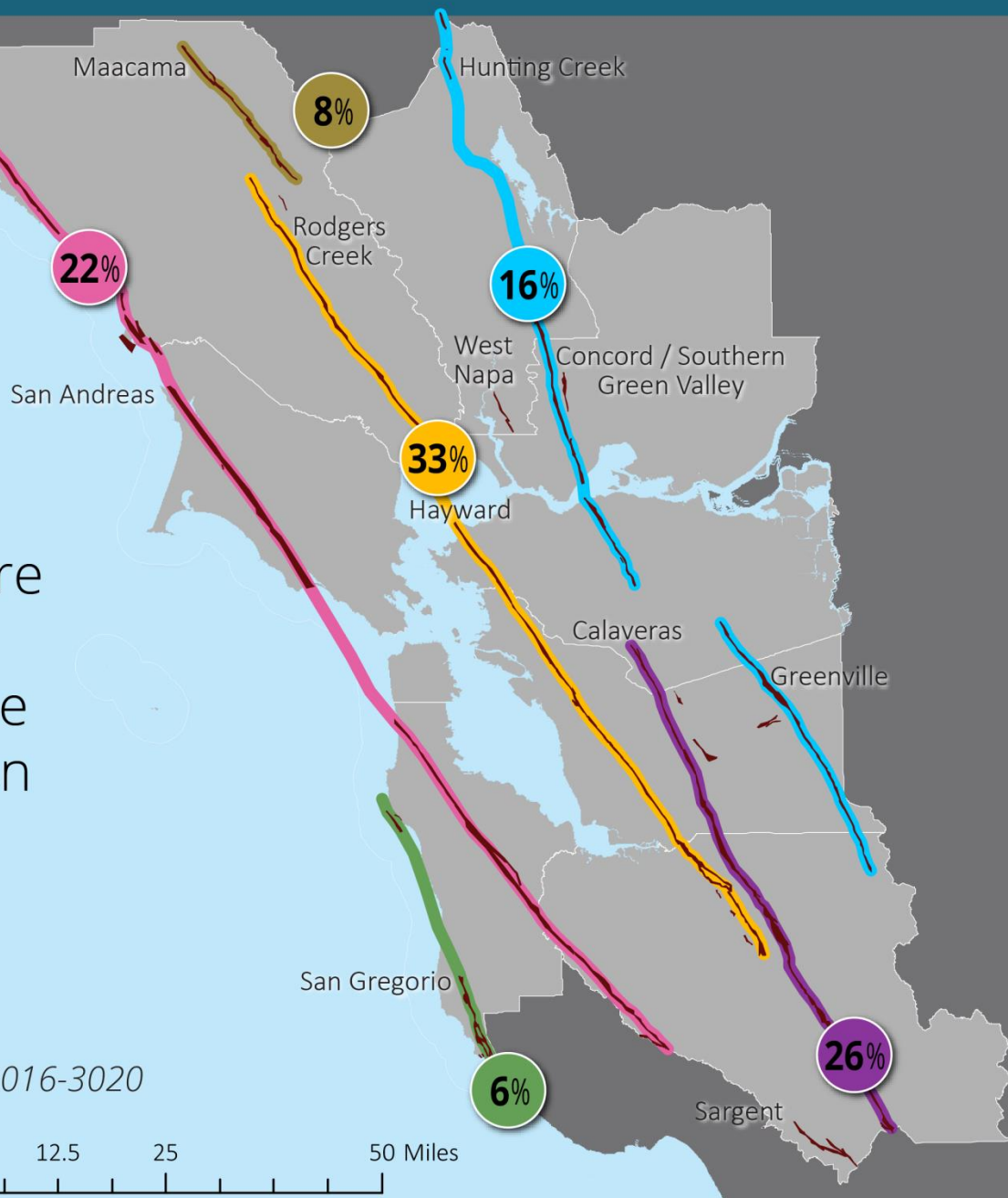
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Water After an Earthquake Panel

Major Bay Area Faults & Their 30 Year Earthquake Probabilities (M>6.7)

72%

probability of one or more
M>6.7 earthquakes
from 2014 to 2043 in the
San Francisco Bay Region



Information adapted from USGS Fact Sheet 2016-3020

M7.0 Hayward Scenario Earthquake Shaking Map (for Nine County Bay Area)

Shaking

- MMI 9 - Violent
- MMI 8 - Very Strong
- MMI 7 - Strong
- MMI 6 - Moderate
- MMI 5 - Light

Map Source: USGS & CISN (2015)



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